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Gary Miller

Remedial Project Manager

U.S. Environmental Protection Agency, Region 6

Superfund Division (6SF-RA)

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SUPERFUND
REMEDIAL DIVISION
(6SF-R)

Re Plan for Armor Rock Placement Adjacent to the Time Critical Removal Action Armored Cap San Jacinto River Waste Pits Superfund Site, Channelview, Texas

Dear Gary,

This plan is submitted in response to a request by the U.S. Environmental Protection Agency (USEPA) that McGinnes Industrial Maintenance Corporation (MIMC) and International Paper Company (IP) perform work in the main river channel of the San Jacinto River channel. The work would be performed in an area, as shown on Figure 1 (Area), located to the east and outside the footprint of the San Jacinto River Waste Pits Time Critical Removal Action (TCRA) armored cap (Armored Cap). In the Area, scour, likely as a result of Hurricane Harvey, has occurred, while post-Hurricane Harvey inspections of the Armored Cap demonstrate that there was not a release of material to the environment, and the Armored Cap performed well.

The work would involve placing additional rock within the Area in order to fortify it. The proposed work would be consistent with enhancements to protect the Armored Cap that MIMC and IP have proposed be included in a final remedy for the Site. The additional rock would be placed in the river channel in the locations shown in Figure 1.

Background

Following Hurricane Harvey's landfall on the Texas coast, Anchor QEA, LLC, probed the Armored Cap and surveyed the Armored Cap and adjacent areas as required by and in accordance with the TCRA Operations, Monitoring, and Maintenance Plan (Anchor QEA 2011).¹ Probing of the Armored Cap conducted under the OMM Plan showed the Armored Cap to be intact along its perimeter in the vicinity of the Area, where it was designed and constructed with a thickened rock edge. A survey was performed on September 6 and 7, 2017, that showed that the grades in the Area appeared to be 5 to

¹ The OMM Plan was attached to the Draft Final RACR, submitted to USEPA on November 22, 2011, and authorization to implement the OMM Plan was contained in an email from USEPA dated January 18, 2012. The OMM Plan was also attached as an appendix to the Revised Draft Final RACR submitted to USEPA on March 9, 2012. An addendum to the OMM Plan, dated February 29, 2016, was developed to describe the addition of security cameras, their monitoring, and notifications, and approved by USEPA on March 31, 2016.



12 feet below the elevations measured during the July 2017 quarterly inspection survey (Figures 1, 2, and 3)

Work Plan

Type D rock (D_{50} equaling 8 inches) or larger will be placed in the Area as shown on Figure 1. Cross sections depicting the pre-hurricane and post-hurricane river bottom profiles, as well as the proposed armor rock placement, are provided in Figures 2 and 3. A nonwoven geotextile will be placed prior to placement of the rock. The 12-foot-wide geotextile panels will be placed down the slope, perpendicular to the slope contours, and overlapped at least 3 feet as shown in Figure 4. To keep the geotextile in place, the panels will be anchored at the top of the slope with sand bags, geotextile pins, rebar, or armor rock. The geotextile will be deployed down the slope and pinned at the toe of the slope with sand bags or armor rock. After anchoring the geotextile panels, the contractor will place a minimum 3-foot thickness of rock in the Area. For existing slopes that are steeper than 3H:1V, additional rock will be placed to achieve a final 3H:1V slope.

USEPA will assist in providing any authorizations or approvals that may be required to conduct the work.

Quality Assurance Procedures

Quality assurance measures will consist of rock thickness calculations and a bathymetric survey to provide a weight of evidence that the specified minimum rock thickness and design slope angle have been achieved. Thickness will be calculated by using barge displacement to compute the tonnage of rock placed over the work area. Tons will be converted to cubic yards using a conversion factor determined in consultation with the contractor and the quarry. The bathymetric survey will be used to confirm relatively even rock placement and to calculate thickness by comparing the pre-construction and post-construction surveys. If, based on review of the survey, there is evidence of subgrade settlement, the surveyed thickness may need to be "corrected" using the barge displacement thickness calculation. The bathymetric survey will also confirm a slope angle of 3H:1V was obtained.

As a contingency quality assurance measure, probing (Contingency Probing) may be attempted to measure the placed rock thickness. Given the thickness of rock to be placed, however, experience indicates that it may be difficult to completely penetrate the full rock thickness. Thus, Contingency Probing would only be used if the weight of evidence collected using bathymetry and calculated thickness indicates that there may be areas that do not meet the specified minimum thickness. For Contingency Probing, a steel probe will be advanced through the rock until the underlying geotextile is encountered. The placed rock thickness will be calculated at the location of probing according to the difference between the water depth to the surface of rock and the water depth to the contact with the geotextile.

Contingency Probing will be conducted on an as-needed basis in areas where the specified minimum thickness cannot be confirmed by the weight of evidence from survey and thickness calculations. In areas where less than 3 feet of armor rock is measured by Contingency Probing, additional rock will be placed, and the area will be reprobod to confirm that the minimum rock thickness has been achieved by the rework.

A hydrographic survey will be used to document the as-built condition of the work. A report documenting the work will be submitted to USEPA following completion of the as-built survey.

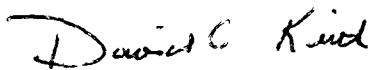
Schedule

MIMC and IP have been coordinating with a marine contractor to establish the schedule for implementation of the work. The following is the proposed implementation schedule, based on key milestones:

- Start of mobilization within 2 weeks of USEPA approval of this plan
- Completion of geotextile and rock placement within 3 weeks of the start of marine construction, assuming no significant weather delays, timely delivery of armor rock, and available tides and flow conditions that are compatible with the work described above
- Completion of final as-built survey within 1 week of the completion of geotextile and armor rock placement, assuming no significant weather delays
- Report submittal to USEPA within 30 calendar days of completion of the final as-built survey

Please let us know if you have any questions about the proposed activities, and do not hesitate to contact me if you would like to discuss anything.

Sincerely,



David C. Kerth, Ph.D., P.G., C.H.G.
Project Coordinator



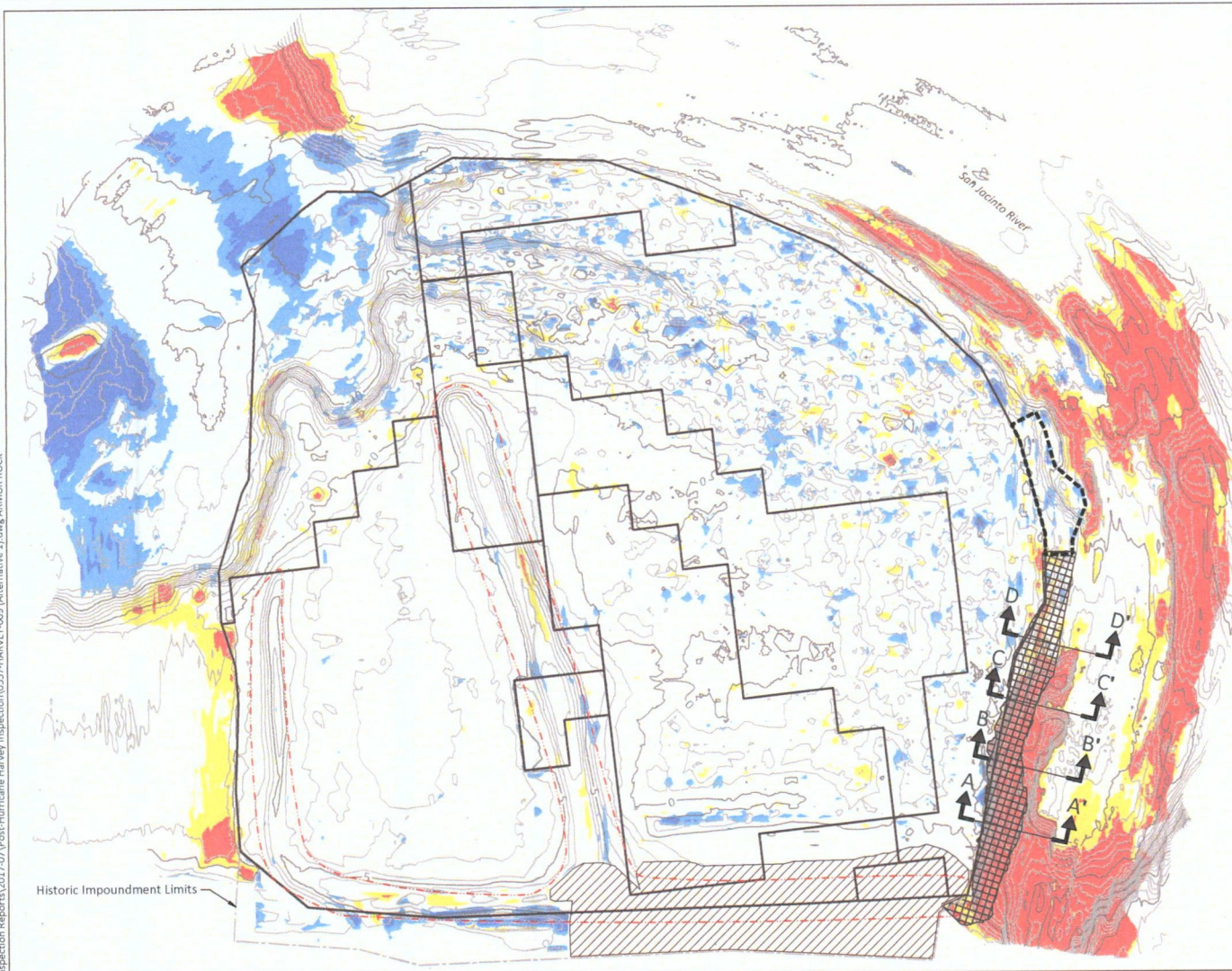
John Verduin, P.E.
Engineer of Record

cc: Dave Moreira, McGinnes Industrial Maintenance Corporation
Phil Slowiak, International Paper Company
John Laplante, Anchor QEA, LLC
Wendell Mears, Anchor QEA, LLC

Attachments

- | | |
|----------|--|
| Figure 1 | Plan View of Armor Rock Placement Area |
| Figure 2 | Cross Sections A-A' and B-B' |
| Figure 3 | Cross Sections C-C' and D-D' |
| Figure 4 | Plan View of Geotextile Panel Layout |

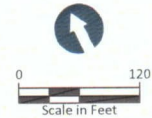
Figures

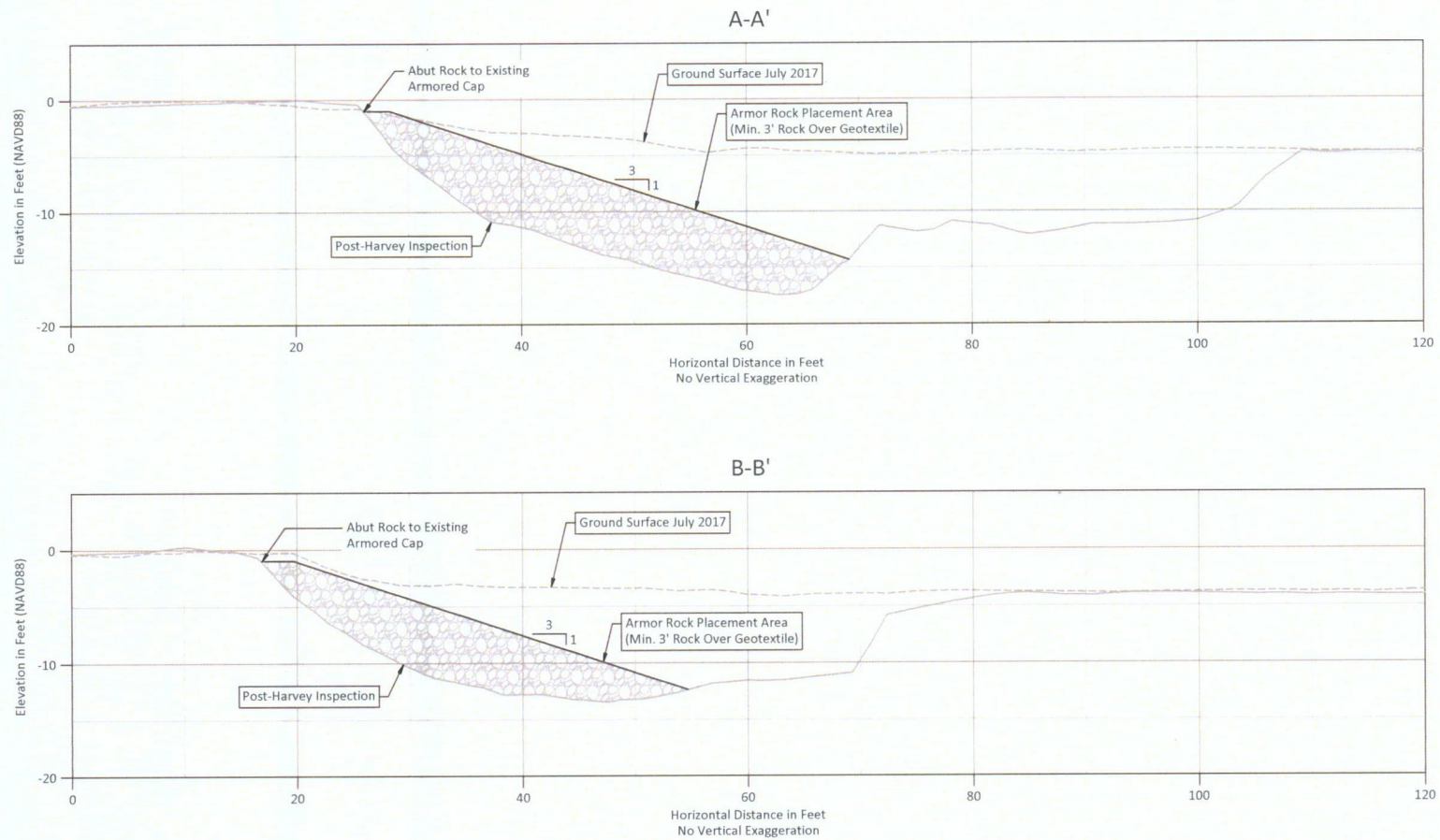


LEGEND:

- September 2017 Post-Hurricane Harvey Inspection Bathymetric and Topographic Contours (1 Foot Interval)
- Armor Rock Placement Area Footprint
- Area Not Included in September 2017 Post-Harvey Inspection Survey Due to Ongoing Maintenance
- Armored Cap Type and Boundary
- Historic Impoundment Limits
- Limits of November 2016 Work Plan
- > 1.0 Foot Increase
- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- Approximate Location of Western, Southern, and Central Berms

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated July 2017 and September 2017.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.





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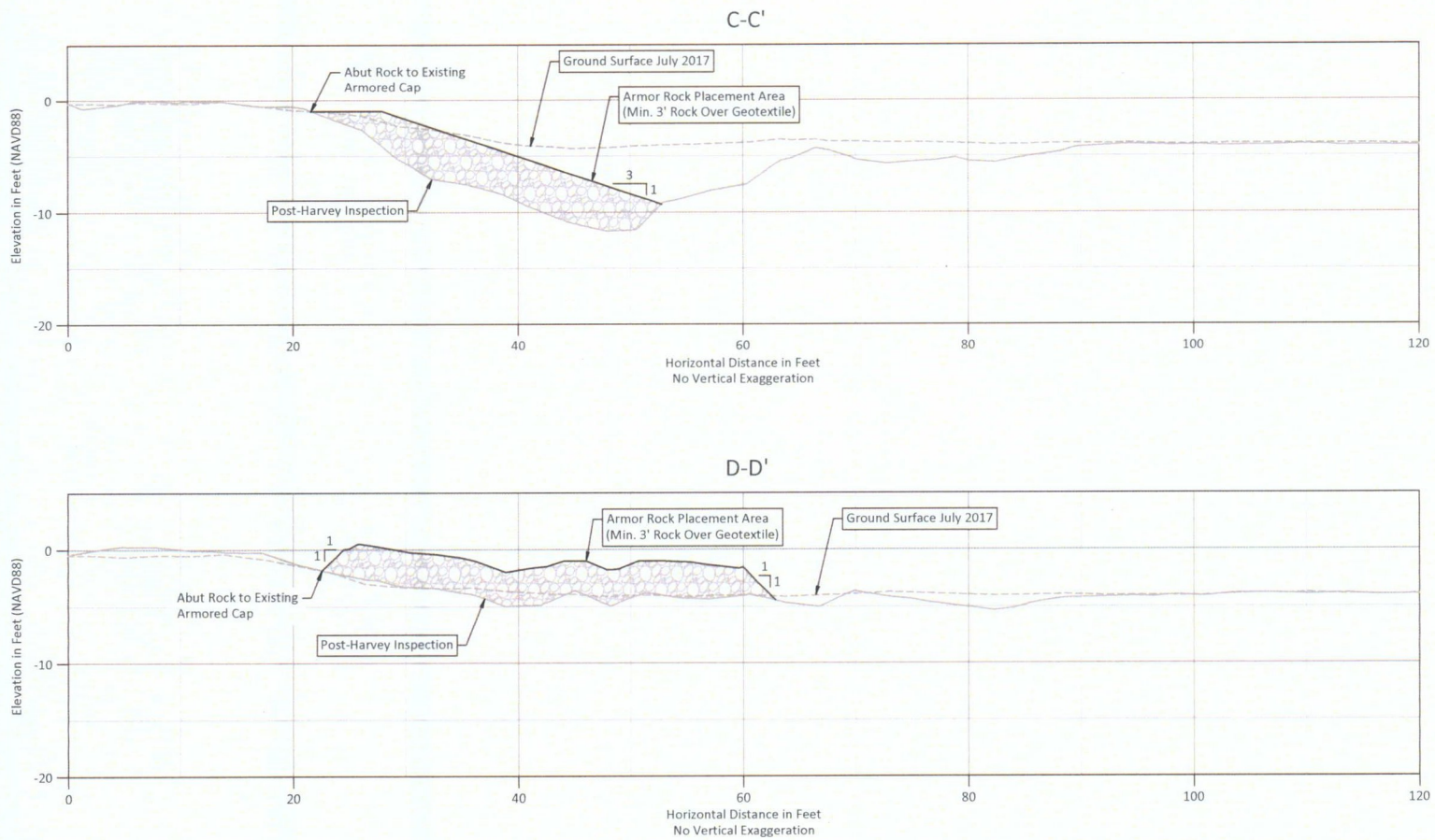
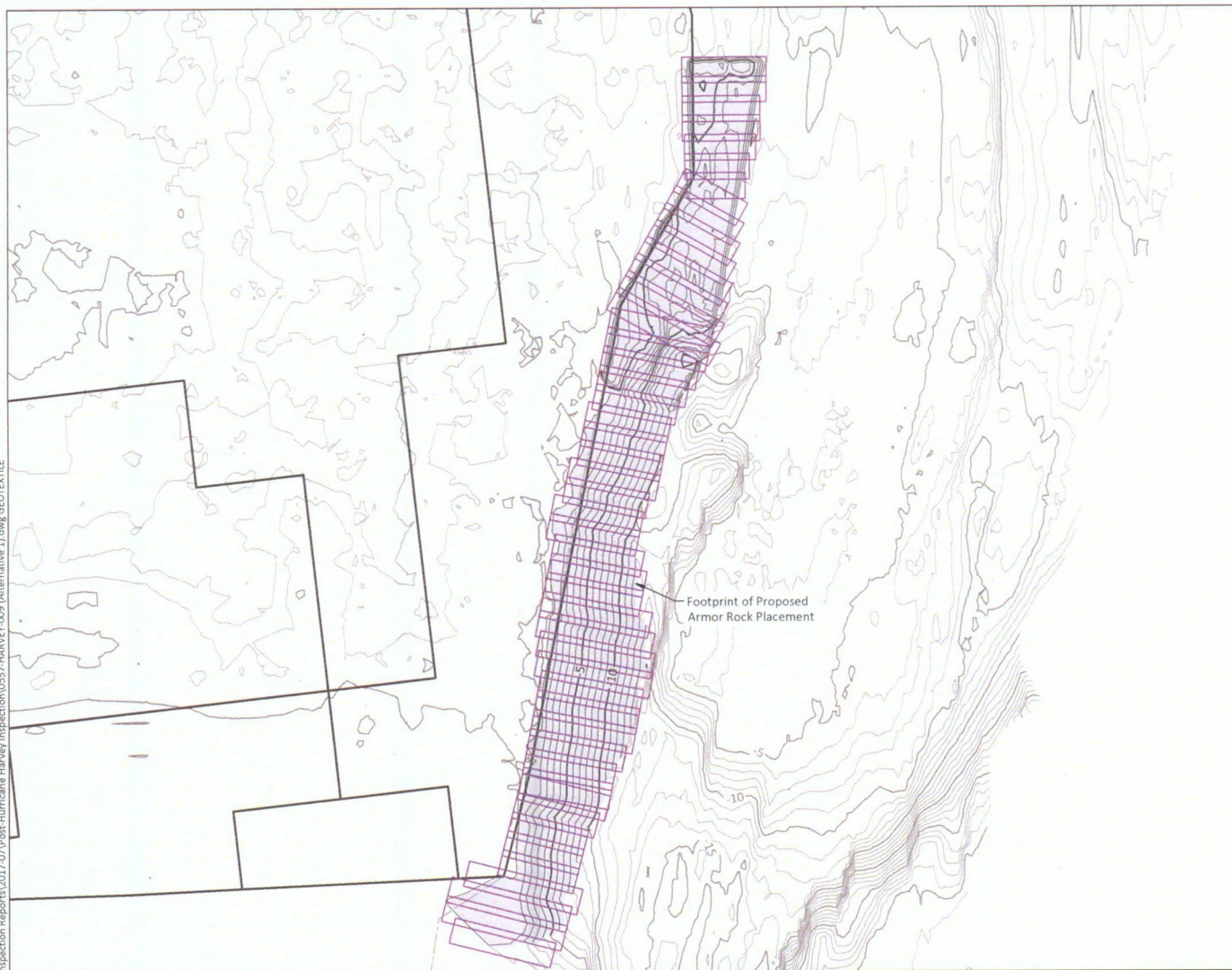


Figure 3
Cross Sections C-C' and D-D'
Post-Hurricane Harvey Work Plan (September 2017)
San Jacinto River Waste Pits Superfund Site



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LEGEND:

-  September 2017 Post-Hurricane Harvey Inspection Bathymetric and Topographic Contours (1 Foot Interval)
-  Armor Rock Placement Area Contours (1 Foot Interval)
-  Armored Cap Type and Boundary
-  Historic Impoundment Limits
-  Geotextile Panel Location (Assuming 12-Foot-Wide Panels with 3 Foot Overlap)

SOURCE: Drawing prepared from survey provided by Hydrographic Consultants dated September 2017.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

